

## DETAILED ACTION

### ***Specification***

The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

The attempt to incorporate subject matter into this application by reference to ISO 6509 in claims 14 and 16 and JIS H8711 in claims 15 and 17 are improper because said subject matter is considered as essential material to the claimed invention.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 14-17 are vague and indefinite for the reasons set forth in the “Specification” paragraph above.

### **Claim Rejections - 35 USC § 103**

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c ) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 11-17 are rejected under 35 U.S.C. § 103 as being unpatentable over US 2002/0015657 to Dong.

Dong discloses Cu-Zn-Sn-Si alloys ([0017] to [0019]) with alpha phase matrix, hardness range (Table 2), control of stress corrosion cracking ([0032]), and maximum depth of dezincification ([0043]). The other phase such as  $\gamma$ ,  $\kappa$ , or  $\beta$  is controlled by Si/Sn ratio to be dispersed between alpha phase regions ([0029 to [0030]) which read on claimed 90% or more alpha phase. Nonetheless, the amount of alpha phase is a known result effective variable to improve dezincification ([0002] to [0005]). It would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the amount of alpha phase, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With respect to the instant recited expressions that it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688.

With respect to claims 15 and 17 that Dong teaches to control P, Sb, and/or As contents within 0.02 to 0.2 wt.% in order to control stress corrosion cracking ([0032]). Since the P content of Dong is about the same as instant P content (see instant claim 1), the alloy of Dong would have the same crack resistance.

Claims 1 and 11-17 are rejected under 35 U.S.C. § 103 as being unpatentable over USP 4259124 to Smith et al (reference of record) in view of US 2002/0015657 to Dong.

Smith discloses features including the claimed Cu-Zn alloy composition and alpha-phase structure (col. 2, lines 1 to col. 3, line 7) except for maximum dezincification depth, stress corrosion cracking resistance, hardness, and specific amount of lead. Dong discloses copper alloy composition similar to Smith would have recited properties such as maximum dezincification depth, stress corrosion cracking resistance, and hardness (Dong [0032], Table 2, and [0043]). Therefore, ordinary skill artisan would recognize said properties are conventional and can be obtained by conventional processing for copper alloy of cited prior arts. Smith teaches to add lead to improve machinability but does not disclose the amount of lead (col. 2, line 67 to col. 3, line 7). Dong discloses 0.5 to 3 wt.% lead would improve machinability ([0033] and

[0034]). In view the teachings of Dong, ordinary skill artisan would recognize 0.5 to 4.5 wt.% lead would be included in the Cu-Zn alloy of Smith in order to improve machinability. It has been held that combining known ingredient having known functions, to provide a composition having the additive effect of each of the known functions is within realm of performance of ordinary skill artisan. *In re Castner*, 186 USPQ 213 (217). The use of conventional materials to perform their known functions in a conventional process is obvious. *In re Raner*, 134 USPQ 343 (CCPA 1962).

With respect to the instant recited expressions that it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688.

### ***Response to Arguments***

Applicant's arguments filed March 4, 2011 have been fully considered but they are not persuasive.

Therefore, the hardness of the samples (Sample Nos. 13 and 17) disclosed by Dong overlaps claimed alloy hardness.

However, the composition of the samples (Sample Nos. 13 and 17) disclosed by Dong does not overlap claimed alloy composition. Therefore, Dong fails to disclose or suggest any copper alloys having both of alloy composition and hardness as claimed in claims 1 and 12. That is, Dong fails to disclose or suggest any copper alloys having claimed alloy composition as

Applicants argue “well as claimed hardness.”

But, Dong in [0017] to [0019] discloses compositions overlapping claimed Cu based

alloy compositions. Dong does not explicitly disclose hardness range. But, clearly the hardness range extrapolated from different examples in Table 2 overlaps the claimed hardness range as recognized by applicants. It is well settled that the examples of the cited reference are given by way of illustration and not by way of limitation. *In re Widmer*, 353 F.2d 752, 757, 147 USPQ 518, 523 (CCPA 1965), *In re Boe*, 148 USPQ 507 (CCPA 1966), and *In re Snow*, 176 USPQ 328.

~~However, Dong fails to disclose or suggest any copper alloys wherein a proportion of an alpha phase is 90 vol% or more. That is, the method used by Dong does not include any step of~~ Applicants argue “~~any step of~~” But, the other phase such as  $\gamma$ ,  $\kappa$ , or  $\beta$  is controlled by Si/Sn ratio to be dispersed between alpha phase regions ([0029 to [0030]) which read on claimed 90% or more alpha phase. Nonetheless, the amount of alpha phase is a known result effective variable to improve dezincification ([0002] to [0005]). Dong in [0005] discloses

[0005] According to ~~Government~~ Published Japanese Patent Application (PJA) No. 081861994, Sn is added to Cu-Zn alloys and, after hot extruding, the alloys are subjected to a heat treatment so that they are ~~solely composed of the  $\alpha$  phase, thereby enhancing their resistance to dezincification.~~

It would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the amount of alpha phase, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

~~Therefore, Dong fails to disclose or suggest any copper alloys having an excellent stress corrosion cracking resistance and an excellent dezincification resistance while maintaining~~

Applicants argue “~~excellent characteristics of conventional brasses.~~”

[0031] P, Sb, As:

[0032] These elements are effective in suppressing dezincification without impairing ductility and forgeability. If their addition is less than 0.02%, the intended effect of suppressing dezincification is not obtained. If their addition exceeds 0.2%, boundary segregation occurs to reduce ductility while increasing stress corrosion cracking sensitivity. Hence, the contents of P, Sb and As are each specified to lie between 0.02 and 0.2%.

But, applicants' attention is direct to of Dong. Dong teaches to control P content about same as P content (0.02 to 0.15 wt.%) in instant

claim 1. Therefore, alloy of Dong would have the same stress corrosion cracking resistance as instant claimed alloy.

~~Smith fails to disclose or suggest any copper alloys containing at least one of 0.3 to 3.0 wt% of lead and 0.3 to 3.0 wt% of bismuth.~~

Applicants argue “~~Smith also fails to disclose or suggest~~” But,

~~0.3 weight zirconium, 0.001 to 1.0% by weight nickel, 0.001 to 1.0% by weight titanium, or any combination thereof may be added to the alloy. Various other elements such as lead may be added to improve the machinability of~~

Smith in col. 2, teaches

Dong discloses

[0033] Pb:

(#034) Lead is added to improve the cuttability of the material. If its addition is less than 0.5%, the desired cuttability is not attained. If the Pb addition exceeds 3%, hot working such as extruding or forging is difficult to perform. If Pb is to be added, its compositional range is between 0.5 and 3%, preferably between 1.5 and 2.3%.

It has been held that combining known ingredient

having known functions, to provide a composition having the additive effect of each of the known functions is within realm of performance of ordinary skill artisan. In re Castner, 186 USPQ 213 (217). The use of conventional materials to perform their known functions in a conventional process is obvious. In re Raner, 134 USPQ 343 (CCPA 1962).

~~to 3.0 wt% of bismuth. Smith also fails to disclose or suggest any copper alloy containing at least one of 0.02 to 0.15 wt% of phosphorus, 0.02 to 3.0 wt% of nickel and 0.02 to 0.6 wt% of iron, the total amount of phosphorus, nickel and iron being in the range of from 0.02 to 3.0 wt%.~~ Therefore, the composition disclosed by Smith does not overlap claimed alloy composition.

Applicants argue “~~disclosed by Smith does not overlap claimed alloy composition.~~” But,

- ~~tion to suit various purposes. For example, a grain refining element selected from the group consisting of 0.001 to 3.0% by weight iron, 0.001 to 5.0% by weight cobalt, 0.001 to 1.0% by weight chromium, 0.001 to 1.0% by weight zirconium, 0.001 to 1.0% by weight nickel, 0.001 to 1.0% by weight titanium, or any combination thereof may be added to the alloy. Various other elements such~~

it is found inconsistent with teaching of Smith in col. 2,

Applicants argue

~~In redefinition, Smith fails to disclose or suggest any copper alloys having the claimed hardness, i.e., a hardness H<sub>v</sub> of 80.2 to 100.1.~~

" But, applicants' arguments

against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references.

See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The same response is reiterated for argument in page 10, third full paragraph of instant remarks.

~~Smith fails to disclose or suggest any copper alloys wherein a proportion of an alpha phase is 90 vol% as more.~~

Applicants argue " more. "

But, applicants' attention is directed to col. 2 of Smith

~~The elemental additions discussed above maintain an essentially single-phase alpha alloy. It should be stressed so that two-phase formation should be avoided as much as possible. Although immediately after casting and solidification, the structure is two-phase, it rapidly transforms to a single-phase structure.~~

which teaches "essentially single-phase alpha alloy".

## Conclusion

Applicant is reminded that when amendment and/or revision is required, applicant should therefore specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. § 1.121 and 37 C.F.R. Part §41.37 (c)(1)(v).

### Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (571) 272-1241. The examiner can normally be reached on Monday to Thursday from 5:30 A.M. to 4:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Jessica L. Ward, can be reached on (571)-272-1223.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1735

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sikyin Ip/  
Primary Examiner, Art Unit 1735  
May 22, 2011